Appendix A-9:
RY21 MassQEX Reports User Guide (14.0)

Supplement to:
RY2021 EOHHS Technical Specifications Manual for MassHealth Acute Hospital Quality Measures (Version 14.0)

Published: November 15, 2021

Table of Contents

Section 1: Introduction

The MassHealth Hospital Pay-for-Performance (P4P) Program provides hospitals with various quality reports that contain feedback on status towards achieving performance as defined each EOHHS Acute RFA contract rate year. This MassQEX Reports User Guide (v14.0) contains updated information on how to read all report results that apply for RY21 measure calculations.

A. MassHealth Quality Measures. Below are the updated measure data periods applicable to this user guide.

Table 1: RY2021 Quality Measure Data Periods

Metric ID #	Measure Name	Measurement Period	Improvement Noted As
MAT-4	Cesarean Birth, NTSV	July 1, 2020 – Dec 31, 2020	Lower is better
NEWB-1	Exclusive breast milk feeding		Higher is better
CCM-1	Reconciled medication list at discharge		Higher is better
CCM-2	Transition record with specified data elements at discharge	July 1, 2020 – Dec 31, 2020	Higher is better
CCM-3	Timely transmission of transition record		Higher is better
HD-2	Health Disparity Composite	July 1, 2020 – Dec 31, 2020	Lower is better
PSI-90	Patient Safety and Adverse Events Composite	Oct 1, 2017 – Sept. 30, 2019	Lower is better
HAI-1	Central Line-Associated Bloodstream Infection		Lower is better
HAI-2	Catheter-Associated Urinary Tract Infection	Jan 1, 2018 – Dec 31, 2019	Lower is better
HAI-3	Methicillin-Resistant Staphylococcus Aureus bacteremia		Lower is better
HAI-4	Clostridium Difficile Infection		Lower is better
HAI-5	Surgical Site Infections (colon & abdominal hysterectomy)		Lower is better
HCAHPS	Hospital Consumer Assessment Healthcare & Provider System	Jan 1, 2019 – Dec 31, 2019	Higher is better

The MassQEX reports contain information on process measures (perinatal, care coordination, health disparity), patient safety (PSI-90, HAI's) and patient experience (HCAHPS) outcome measures. The "Improvement Noted As" column refers to performance direction associated with each measure result.

B. Quality Reports Audience

- *Hospital Key Representatives* - The primary audience for all reports are the hospital key representative (Quality and Finance executive) identified as the EOHHS liaison for all MassHealth communication regarding correspondence on performance progress under the Acute RFA contract. Key representatives are responsible for ensuring their MassQEX Hospital Users access and review all reports in a timely manner.

- *MassQEX Hospital Staff Users* - Only authorized registered users can access quality reports via the portal on the hospital's behalf. **NOTE**: Several reports display *protected health information* that may be disclosed only with authorized individuals within the hospital in accordance with HIPAA requirements.

- *MassHealth Notices* – All hospitals are notified via the MassQEX listserv and EOHHS business mailbox when quality and performance score reports posted in the secure portal.

C. Report Posting Schedule: Hospitals can download the following reports described in this user guide:

- *Case List Request* - posted within 14 calendar year days following the portal close dates of quarter reporting period described in Section 1 of the EOHHS Technical Specifications Manual (14.0).
- *Validation Reports* - posted after all three quarters of validation, as applicable, are completed.
- *Year-End Reports* - posted for all process and outcome measures by December each year.
- *Hospital Performance Score Reports* – posted 2 to 3 months after year-end reports were posted.

D. Accessing Portal Reports: Hospital registered users can log-in via the portal https://massqex-portal.telligen.com/massqex/ and under the "Getting Started" header select "MassQEX Year-End Reports" link and the specific hospital folder linked to user appears. Please contact the MassQEX Helpdesk at massqexhelp@telligen.com for all questions related to the MassHealth quality report results posted in the MassQEX secure portal.

Section 2: MassHealth Quality Report Descriptions

Each MassQEX report includes standardized header content (hospital name, provider ID, report name, data period) pertinent to facilitate Hospital access, tracking and management of documents.

A. MassQEX Process Measure Reports

The MassQEX portal posts various quality reports for the hospital reported process measures (perinatal, care coordination, health disparity) listed in above Table A of this User Guide.

1) Medical Record Case List Request: Displays the list of cases identified from the hospital quarter submission data files selected for chart validation. Below is a description of this report content.

Table 1: MassQEX Record Case List Request

Column Name	Description
Patient Name	Last and first name identified from hospital files submitted to the MassQEX portal
Medical Record #	7 to 9 digit number identified from hospital files submitted to the MassQEX portal
Admit Date	The MM/DD/YY values in hospital files for quarter discharge period submitted
Discharge Date	The MM/DD/YY values in hospital files for quarter discharge period submitted
Date of Birth	The MM/DD/YY values in hospital files for quarter discharge period submitted
Metric ID:	Acronym identifier for the specific MassQEX quality measure data for chart review.
MP Validation Control	A unique identifier generated by the MassQEX portal for cases selected for validation.

a. **Case List Posting Schedule:** The RY21 request for chart validation apply to CY2020 Q3-2020 and Q4-2020 data reporting only. Hospital case lists are posted within 14 days after each reporting cycle closes.

b. Hospital Notifications: Hospitals are notified, via the MassQEX listserv system, when the case list is posted in the portal. All Hospital staff described in Section 1.B of this User Guide, are responsible for communicating chart request requirements to their Medical Records Department. IMPORTANT: The case list contains protected health information that may be disclosed only with authorized individuals within the hospital in accordance with HIPAA requirements.

c. Chart Submission Requirements: Hospitals must adhere to following instructions for submitting records:

i. Hospital must submit a copy of the entire medical record for the admission/discharge dates of *each* member identified in the record case list.

ii. Each paper medical record must also include information on MassHealth unique identifiers for "Race and Hispanic Indicator" data elements either within the record or as a screen print from the hospital's registration system.

iii. **For the CCM-2 measure**: In addition to the complete medical record submitted, hospitals can submit documentation in the form of a list of document names of what comprises the transition record given to the patient or caregiver(s) or site of care for a transfer for each case selected for validation with their submission of medical records for each quarter.

iv. **Chart Submission Format:** As of RY21 electronic transmittal of chart records for validation purposes are required and paper submissions will be phased-out by RY22. Hospitals must submit copies of medical records via the MassQEX secure file transfer portal (SFTP) using instructions in Section 6 of the RY21 EOHHS Manual (14.0). During this transition, RY21 paper copies can be mailed to: Telligen, Inc. Attention: MassHealth Quality Exchange 800 South Street (Suite 170) Waltham, MA 02453.

v. **Submission Due Date:** Each posted case list includes a deadline by which MassQEX must receive all case list records. Copies of case records **not received** by the due date listed will be deemed as failing data validation**.** Refer to the EOHHS Technical Specifications Manual (Section 6.A) for detail on chart requirements.

Contact the MassQEX Helpdesk at massqexhelp@telligen.com for questions case list submissions.

2) Year-End Data Validation Results: This report provides the overall agreement rate results based on three quarters of case records selected for chart validation. Below is a description of this report content.

Table 2: MassQEX Year-End Validation Report

Column Name	Description
Validation Period	Identifies the applicable quarter period data reviewed
Scored item agreement	The EOHHS abstraction total number of scored item agreement applicable to the quarter discharge period
Total scored items rated	Total number of scored items rated in each quarter discharge period
Agreement rate	Proportion of scored items in agreement divided by total scored items rated
Overall results	This row displays the overall agreement rate for the total scored item agreement and total score items rated.
Upper confidence limit (UCL)	Statement above report table displays the upper bound of the 95% confidence interval calculation and the pass/fail designation

Report Display Code: Other entry codes displayed under a column indicate the following,

- NC = No cases were submitted by the hospital
- INC = Incomplete case data files were submitted for the measure category
- INVALID = Data completeness was not met

3) Year-End Validation Record Detail: This report provides more detail on case-level data element agreement rate across measures selected for validation by quarter discharge period. Below is a description of this report content.

Table 3: MassQEX Validation Record Detail Report

Column Name	Description
Discharge Period	Identifies the specific quarter period that detail applies
Metric ID	Acronym identifier for the MassQEX quality measure data that was validated
Medical record #	7 to 9 digit number identified from submitted hospital files
Validation Control #	Unique identifier generated by MassQEX portal on case selected for validation
Admit Date	MM/DD/YY values in hospital files for quarter discharge period submitted
Discharge Date	MM/DD/YY values in hospital files for quarter discharge period submitted
Data element reliability	Scored items in agreement divided by total scored items rated for metric ID

IMPORTANT: This report displays protected health information that may be disclosed only with authorized individuals within the hospital in accordance with HIPAA requirements.

4) Year-End Validation Data Element Comments: This report provides educational feedback on data element mismatches found between the hospital's versus EOHHS abstraction standard for case records submitted for the calendar year. Below is a description of the report content.

Table 4: MassQEX Data Element Comments Report

Column Name	Description
Discharge Period	Identifies the specific quarter period that comment applies
Validation Control #	Unique identifier generated by MassQEX portal on case selected for validation
Element Label	Data element that resulted in mismatch between hospital submission and EOHHS abstracted value
Hospital Abstraction	Identifies the hospital data element value as submitted in the data XML data file
EOHHS Abstraction Standard	Identifies the EOHHS data element re-abstraction value
Mismatch reason	Reason for mismatch as described in EHS Technical Specs Manual
Comments	Educational detail supporting mismatch result

All year-end validation reports listed above should be reviewed with the hospital staff involved in data abstraction to identify opportunities for improving data reliability of hospital reported process measures.

5) **Year-End Measure Results:** This report consists of one report that displays the overall and quarterly measure rates on two separate tables. Below is a description of this report content.

Table 5: MassQEX Overall Year-End Measure Report

Column Name	Description
Metric ID#	Acronym identifier for the specific MassQEX quality measure data.
Cases Submitted	Total number of cases in hospital files submitted to portal for the calendar year
Cases in Numerator	Total number of cases in hospital files that met the population inclusion
Cases in Denominator	Total number of cases in hospital files that met the eligible population criteria
Hospital Measure Rate	Total number of cases that met the numerator inclusion specification divided by the total number of cases that met the measure eligibility criteria for denominator inclusion

Overall Results display the aggregate measure rates calculated from all calendar year reported data that met each measures numerator and denominator population.

Quarterly Detail Results display measure rates calculated separately on each quarter of data submitted. Column name header, entry notes and description apply to both reports except for "Cases Submitted" column header which is displayed in overall results only.

Report Display Code: Other entry codes displayed under a column indicate the following,

- NC = No cases were submitted by the hospital
- NR = No rate calculated if no cases were submitted or when no cases met denominator for the measure

6) Health Disparity Composite (HD-2) Results: This report combines the overall results on racial comparison and reference group rates, between group variance values, plus a summary of missed opportunity counts from all measures data reported for calendar year. Below is a description of this report content.

Table 6: MassQEX Health Disparity Composite Report

Column Name	Description
R/E Comparison Group	The 5 racial/ethnic groups defined in EOHHS Technical Specs Manual
Reference Group	Total cases of all 5 racial groups in hospital files submitted to the portal
Numerator	Total cases desired care was not given for comparison and reference groups
Denominator	Total cases that met eligible criteria for comparison and reference groups
Rate	Numerator divided by the denominator for comparison and reference groups
Comparison BGV	Degree of variance in care contributed by each racial group
Final BGV	Degree of variance in care contributed by all combined groups
Composite Metric ID	The MassQEX process measures that make up the disparity composite
Total Missed opportunity	Total cases resulting in missed opportunities on each reported measure
Totals	Total count of missed opportunities by each racial comparison group
Unknown Group:	Total count of cases in denominator excluded from calculations

Report Display Code: Other entry codes displayed under a column indicate the following,

- Blank = No cases available
- NR = No rate calculated (less than one racial comparison group in reported data)

The HD-2 composite measure is created from the hospital's reported process measures and should be reviewed in conjunction with the individual process year-end measure report results.

The MassQEX portal includes an additional HD-2 drill-down report for hospitals to identify each missed opportunity case by measure ID that was displayed in their HD-2 Composite Report. Below is information on how to access the drill down report.

7) **Health Disparity (HD-2) Drill-Down Results:** This report provides case-level detail on missed opportunity counts displayed on the year-end health disparity report. Case level information is provided to facilitate identification of charts for further review by the hospital. Below is a description of this report content.

Table 7: MassQEX Health Disparity Drill-Down Report

Column Name	Description
Patient Name	Last and first name identified from hospital files submitted to the MassQEX portal
Medical Record #	7 to 9 digit number from hospital files submitted to the MassQEX portal
Admit Date	The MM/DD/YY values in hospital files for calendar year period submitted
Discharge Date	The MM/DD/YY values in hospital files for calendar year period submitted
Date of Birth	The MM/DD/YY values in hospital files for calendar year period submitted
Metric ID	Acronym identifier for the specific MassQEX quality measure data.

Hospitals should refer to Section 3 of this MassQEX Reports User Guide for additional detail on how to interpret the HD-2 composite missed opportunity report results column fields described on Table 6 above.

IMPORTANT: This report displays protected health information that may be disclosed only with authorized individuals within the hospital in accordance with HIPAA requirements. This drill-down report is displayed in HTML web page browser format for viewing only and cannot be downloaded for printing. Contact the MassQEX helpdesk at massqexhelp@telligen.com or (844) 546-1343 for assistance with interpreting the content of the HD-2 drill down report.

The Hospital should review all process measure reports (maternity, newborn, care coordination, and health disparity) described under this section with the appropriate hospital staff and/or third-party data vendors involved in MassHealth P4P measures data collection and reporting.

Hospitals should submit any questions related to measure calculations to the MassQEX Customer Support Help Desk by email at massqexhelp@telligen.com.

B. MassQEX Safety Outcome Measure Report

The MassQEX safety outcome measures report contains results displayed on two distinct tables for the PSI-90 and Healthcare associated infection measures. Below is a description of the report content.

1) PSI-90 Composite Results: The top portion of this report displays results on each patient safety observed event, the overall composite value and z-score value. Below is a description of the PSI-90 report content.

Table 8: MassQEX PSI 90 Composite Report

Column Name	Description
PSI Components	Lists the ten AHRQ quality indicators included in the PSI-90 composite calculation.
# Events	Number of cases that met the numerator inclusion criteria (event outcome) for each PSI component.
# Eligible Discharges	Number of discharges that met the denominator inclusion criteria (eligible population at risk) for each PSI component.
Observed Rate	Total event outcomes divided by the total eligible population at risk displayed per 1000 eligible discharges. Results are rounded to two decimals.
Expected Rate	Total expected events divided by total eligible population at risk displayed per 1000 eligible discharges. Results are rounded to two decimals.
Risk-Adjusted Rate	The observed rate divided by expected rate times the reference population rate displayed per 1000 eligible discharges. Results are rounded to two decimals.
Smoothed Rate	Weighted average of the hospitals risk-adjusted rate and the HCUP reference population rate using the reliability weight. The smoothed rate is the hospitals expected performance with a larger population of patients displayed per 1000 eligible discharges. Results are rounded to two decimals.
PSI-90 Composite Index Value	The weighted average of all ten indicators that have been risk-adjusted and reliability-adjusted. Results are displayed to six decimals. This result is used to determine your PSI-90 Winsorized z-score. *NOTE: As of RY21 measurement period the index value results reflect a retrospective overlap period that should be considered when comparing results to prior rate year index value results*.
5th Percentile	Determined based on the distribution of all eligible hospitals with a PSI-90 composite value result. Results are displayed to six decimals.
95th Percentile	Determined based on the distribution of all eligible hospitals with a PSI-90 composite value result. Results are displayed to six decimals.
Winsorized Measure Result	If the PSI-90 value falls below the 5th percentile, the Winsorized result is equal to the 5th percentile value. If the PSI-90 value falls above the 95th percentile, the Winsorized result is equal to the 95th percentile value. If your hospitals PSI-90 composite value falls between the 5th and 95th percentiles, then this value is your Winsorized measure result. Winsorized results are displayed to six decimals.
Winsorized z-score	The z-score reflects how many standard deviations your hospitals PSI-90 composite value is away from the Mean result. A negative z-score indicates the hospitals result was below the Mean whereas a positive z-score indicates the hospitals result was above the Mean. Results are displayed to six decimals.

Report Display Code: Other entry codes displayed under a column indicate the following,

- Blank = No cases identified (hospital not open for at least 12 months of measurement period)
- NRC = No result computed (less than 3 eligible discharges for the PSI component).

The PSI-90 Composite report provides information specific to the MassHealth population using the most readily available AHRQ software version posted at the time of Acute Hospital rate year contract release. *The RY21 PSI-90 data period results were run using the updated AHRQ software v2021 that included adjustments to addition of the "procedure date" variable.* This report should be reviewed in conjunction with the PSI-90 drill-down report described in Table 9 below.

Refer to Section 3 of this MassQEX Report User Guide for detail on Winsor z-score calculation methods described on Table 8 above and understanding MassHealth PSI-90 report discrepancies. Refer to Section 7 of the RY21 EOHHS Technical Specifications Manual (v14.0) for detail on PSI-90 claims working file definitions and calculation methods used to compute this measure.

2) **PSI-90 Drill-Down Results:** This report displays the specific discharges that met the total number of observed events (numerator column) on your PSI-90 Composite Report by each component indicator. The drill-down report will display information for one indicator at a time. Below is a description of the report content.

Table 9: MassQEX PSI 90 Drill-Down Report

Column Name	Description
PSI Component	Screen text above the report will indicate the specific PSI component name that the case level information is provided on.
Case number	Case identifier assigned by MassQEX to each observed event.
Claim No.	10 digit MassHealth claim account number (not same as SSN)
Date of Birth	Patient MM/DD/YY values in MMIS hospital claims files.
Admission Date	The MM/DD/YY values in MMIS hospital claims files for measurement period.
Discharge Date	Patient MM/DD/YY values in MMIS hospital claims files for measurement period.
Trigger DXPR	Indicates which of the ICD-9 diagnoses or ICD-9 procedures were counted as PSI outcome and included in the numerator. If the MMIS hospital stay record has multiple diagnosis or procedure codes for the same PSI outcome, all the codes will be included in this field but the hospital record discharge is only counted once for the PSI measure. If a hospital stay discharge qualified for two separate PSI measures, the hospital record will be counted once for each of the PSI component indicators.
MS_DRG	The code assigned by the CMS Medicare severity diagnosis related group software version 37
ICD-10-CM Diagnosis (DX_1 to DX_35)	Identifies ICD-10 diagnosis codes DX1 through DX35 respectively in claims file. Additional ICD-10 external cause codes will be displayed as DX26 to DX37 if and when identified in the claims file.
ICD-10-PCS Procedure (PR_1 to PR_25)	Identifies ICD-10 procedure codes PR1 through PR25 respectively in claims file
Present on Admission (POA)	Present on Admission flag for Diagnoses 1 through 37 respectively that include: Y=Yes; N=No; U=Unknown; W=Clinically undetermined, and 1= Blank. The POA value of N or U is required to be counted as a PSI outcome and included in the numerator. N/A = Not applicable (POA flag not reported; has value other than ones listed).

The PSI-90 drill-down report provides case-level information on numerator events to facilitate your hospital's identification of charts for further review.

IMPORTANT: This report displays protected health information that may be disclosed only with authorized individuals within the hospital in accordance with HIPAA requirements The PSI-90 drill-down report is displayed in HTML web page format for viewing only and cannot be downloaded for printing.

Please contact the MassQEX helpdesk at massqexhelp@telligen.com or (844) 546-1343 for assistance with interpreting the content of the PSI-90 drill-down report

3) Healthcare-Associated Infections Results: This report displays the overall number of observed infections, standard infection ratios and preview z-score result. Below is a description of the report content.

Table 10: MassQEX HAI Measures Report Content

Column Name	Description
HAI Components	List MassQEX assigned metric ID and each HAI measure name.
# Observed Infections	Number of reported infection events for the specific ward locations applicable to the HAI measure noted in RY20 EOHHS Technical Specifications Manual. For SSI the sum of reported infection events across colon and abdominal hysterectomy procedures performed in the hospital. Result is displayed to three decimals.
# Predicted Infections	Calculated by CDC using the standard population from 2015 baseline period. All results are rounded to three decimals. For the HAI-1 (CLABSI) and HAI-2 (CAUTI) the CDC calculates predicted infections using binomial regression models that are risk-adjusted based on patient care locations. For HAI-3 (MRSA) and HAI-4 (CDI) the CDC calculates number of predicted infections based on patient days using binomial regression models For the HAI-5 (SSI's) the CDC derives the number of predicated infections for each surgical procedure using logistic regression models.
SIR (Standard Infection Ratio)	The CDC calculates an SIR by dividing a hospital's reported number of HAI's by the predicted number of HAI's. For the SIR to be calculated, the hospital's number of predicted infections must be greater than or equal to one. For the HAI-4 (C. Difficile) the CDC will not calculate an SIR if the CDI community-onset prevalence rate for the hospital is above the CDC designated threshold. The SIR result is displayed to three decimals. This result is used to determine each HAI measure Winsorized z-score. *NOTE: As of RY21 the measurement period results reflect a retrospective overlap period that should be considered when comparing to prior rate year results*.
5th Percentile	Determined based on the distribution of all eligible hospitals with a given measure result. Results are displayed to three decimals.
95th Percentile	Determined based on the distribution of all eligible hospitals with a given measure result. Results are displayed to three decimals.
Winsorized Measure Result	If the HAI measure value falls below the 5th percentile, the Winsorized result is equal to the 5th percentile value. If the HAI measure value falls above the 95th percentile, the Winsorized result is equal to the 95th percentile value. If your hospitals HAI value falls between the 5th and 95th percentiles, then this value is your Winsorized measure result. Winsorized results are displayed to six decimals.
Winsorized z-score	The z-score reflects how many standard deviations your hospitals PSI-90 composite value is away from the Mean result. A negative z-score indicates the hospitals result was below the Mean whereas a positive z-score indicates the hospitals result was above the Mean. Winsorized results are displayed to six decimals.

Report Display Code: Other entry codes displayed under a column indicate the following,

- Blank = No data was reported in the NHSN surveillance system for the measure
- NRC = No results computed by CDC if number of predicted infections is less than 1.0 or when the hospital reported insufficient data to CDC.

The MassHealth HAI report reflects a snapshot of each infection measure data extracted from the MassHealth NHSN Group system database using a specific freeze date.

Refer to Section 3 of this MassQEX Reports User Guide for more detail on Winsor z-score calculation methods described on Table 10 above and understanding MassHealth HAI report discrepancies. Refer to Section 8 of the RY21 EOHHS Technical Specifications Manual (v14.0) for more detail on measure collection and calculation rules that apply to the HAI measure report.

C. MassQEX Patient Experience Measure Results

The hospital patient experience survey dimension measures referenced in Section 1.A of this User Guide. A description of how to read the report content follows.

Table 11: MassQEX HCAHPS Report Content

Column Name	Description
Metric ID #	CMS naming convention for individual HCAHPS measures in the Hospital Compare archived database.
Survey Dimension	General description of individual HCAHPS survey dimension that is comprised of one or more survey questions. The seven dimensions include: • nurse communication (HCOMP-1A-P), • doctor communication (HCOMP-2A-P), • hospital staff responsiveness (HCOMP-3A-P), • communication about medicines (HCOMP-5A-P), • discharge information (HCOMP-6Y-P), • care transition (HCOMP-7SA) and • overall hospital rating (HCOMP-RTG).
Top Box Response Rate	Results displayed in the top box response are whole number integers.
# Completed Surveys	Number of completed surveys as reported for the measurement period and posted on Hospital Compare archived database.

Report Display Code: Other entry codes displayed under a column indicate the following,

- Blank = No survey dimension data were posted on Hospital Compare.
- NR = No rates were calculated for top box responses.

The MassHealth HCAHPS report provides comparison year data period results. This report displays results on the seven HCAHPS survey dimension top box response rates obtained from the archived Hospital Compare data files.

Refer to Section 3.C of this MassQEX Report User Guide for other information on how to read the MassHealth specific HCAHPS report discrepancies.

Refer to Section 9 of the RY21 EOHHS Technical Specifications Manual (v14.0) for more detail on MassQEX measure collection and calculation rules that apply to the HCAHPS measure report.

Section 3: Understanding MassHealth Report Results

This section includes information on how to interpret your MassQEX year-end measure results and what discrepancies that may arise when replicating results with internal hospital data.

A. MassHealth Process Measure Report Discrepancy

1) Interpreting Validation and Rate Results

a. *Overall Validation Report*: Hospitals are considered to have passed validation if the overall validation results, is equal to or greater than 80 percent based on the upper confidence limit across first three quarters of calendar year data submitted.

b. *Data Completeness*: The overall validation results also provide information on data completeness reporting requirement. An “INVALID" entry indicates that overall results were adjusted when data completeness was not met across all three quarters. Incomplete reporting of measures data (e.g.: partial, missing) across three quarters provides insufficient information to determine that the data reliability standard has been met across all of the measures the hospital is eligible to report on. Refer to Sections 2 and 6 of the RY21 EOHHS Technical Specifications Manual (14.0) for details on data completeness requirements.

c. *Requesting Re-Evaluation of Validation Results*: Hospitals can request review of results for any quarter that falls below 80 percent. Hospitals have ten (10) business days from the date of original MassQEX listserv notification to Hospital Users of portal reports availability to submit a request for re-evaluation. See the EOHHS Technical Specifications Manual (Section 6.C) details on how to request a re-evaluation.

d. *Measure Rate Report Discrepancy*: Differences between the number of cases submitted by the hospital and the number of cases in the denominator are due to application of MassQEX portal data integrity filters.

2) Understanding Health Disparity Composite (HD-2) Results

This report contains interrelated results that are displayed in two distinct sections. The upper portion of the report (Figure 1.A) displays overall results on variance of care across racial comparison groups and the lower portion of the report (Figure 1.B) displays which measures contributed to missed opportunities by each racial comparison group. Below is an example of mock content followed by an explanation of how to interpret results.

Figure 1.A – HD2 Composite Overall Results (Mock Report)

R/E Comparison Groups	Hispanic	Black/AA	Asian	White	Other	Hospital Reference Group
Numerator	228	87	45	503	20	883
Denominator	670	334	112	1117	40	2273
Rate	34%	26%	40%	45%	50%	39%
Comparison BGV	0.000684	0.002407	0.000009	0.001879	0.000219	N/A
Final BGV	--	--	--	--	--	0.005198

Figure 1.B – HD2 Composite Missed Opportunity Results (Mock Report)

Composite Metric ID	Hispanic	Black/AA	Asian	White	Other	Total Missed Opportunities
NEWB1	1	1		1		3
MAT4	1	1		1		3
CCM1	5	1	1	5	1	13
CCM2	132	49	24	288	12	505
CCM3	85	29	19	195	7	335
TOTALS	228	87	45	503	20	883
Unknown Group	--	--	--	--	--	54

3) Interpreting HD-2 Overall Results

The following provides information on how to read results in the upper portion of the report (Figure 1.A):

a. *Comparison and Reference Group Rates*: The report displays the numerator rate (instances of care not given), the denominator rate (opportunity to receive desired care) for each racial comparison group and hospital reference group (all racial groups combined). A lower group rate indicates less missed opportunities occurred (better care).

b. *Comparison Group BGV*: Each racial comparison group displays a BGV which contributes different information about variance in care. For example, a larger BGV value (0.002407) contributes more to the overall variance in hospital care than a group with a lower BGV (0.000009). Each comparison group BGV is weighted by the size of that racial comparison group compared to hospital's reference group size.

c. *Final BGV*: Represents the degree of variance in care provided to comparison groups relative to the hospital's reference group. The BGV ranges from zero (0= no variation exists) to one (1.0 = variation does exist). Unlike the group rate, the final BGV does not tell us about the direction of improvement. The final BGV is also not significantly correlated size of the comparison groups the hospital reports on. Additional description on overall result description entries are in Section 2 Table 6 of this User Guide.

d. *Understanding Variance in Care*: Interpretation of the final BGV must always be done in conjunction with the racial comparison group rates to the hospitals reference group rate. The degree of disparity contributed by each racial comparison group is based on both the difference between the comparison and reference group rate, and the comparison group population size.

Example of Overall Results

- Figure 1.A provides examples of racial comparison group BGV that are above and below the hospitals reference group rate, both of which contribute to the final BGV.
- The Black/AA group example has a lower composite rate (26%) than the hospitals reference group rate (39%) thus a large BGV value (0.002407) that contributed to the final BGV (.005198).
- The White group example has a higher composite rate (45%) a larger denominator population size than the reference group (39%) thus also contributing to a fairly large BGV (.001879).
- This example illustrates that the Black/AA group received the desired care more frequently relative to the hospitals reference group, and when compared to the White group rate (received desired care less frequently). This suggests that targeting interventions with White Medicaid patients may reduce the hospitals overall variance (final BGV).
- Another way to examine data is by summing all BGV values for non-White comparison groups (.003319) versus White group (.001879) to see which groups contributed most to the final BGV.

e. *Interpreting Results for Quality Improvement*: Several considerations should be taken into account when interpreting your BGV results. Achieving a lower BGV is not necessarily correlate with improvement on a given process measure. Achieving a BGV of zero (0) does not indicate that desired care was given to all patients every time, *only* that there was no variance in care compared to the hospitals reference group.

A hospital with overall poor quality (not giving desired care) may still obtain a low BGV as long as the degree of disparity across racial comparison groups is small. Likewise, a hospital with no improvement in process measure rates may still attain a better final BGV as long as the degree of disparity across racial groups is reduced.

4) **Interpreting HD-2 Missed Opportunity Counts.** This report displays detail on which process measures reported by the hospital contributed to racial comparison group numerator rates in overall results. The following provides information on how to read results in the lower portion of the report (Figure 1.B):

a. This report displays the total missed opportunities (counts) that occurred in the hospital for each measure and the number of cases that were attributed to a specific racial comparison group.

Example B (Missed Opportunity Counts)

- Figure 1.B displays the number of missed opportunities for Hispanic group on CCM-2 metric (n=132) relative to the total CCM-2 missed opportunities (n=505). Thus, the Hispanic group represents 26% of missed opportunities for the CCM-2 measure compared to other racial groups.

- Figure 1.B also displays the number of missed opportunities for White group on CCM-3 metric (n=195) relative to the total CCM-3 missed opportunities (n=335). Thus, the White group represents 58% of missed opportunity for the CCM-3 measure.

b. Hospitals can use total missed opportunity counts to detect patterns by patient groups or service dimensions represented by the measures that are contributing to overall variance in care (final BGV).

c. Additional detail on each number of missed opportunity comparison group cases can be found in your hospitals HD-2 drill down report described in Section 2 Table 7 of this User Guide.

Lastly, the HD-2 report is intended to supplement the individual process measure rates report and HD2 results must be reviewed in conjunction with the hospitals year-end process measure results. Contact the MassQEX help desk at massqexhelp@telligen.com if you need assistance on how to interpret your report.

B. Interpreting Safety Outcome Measure Results

The MassHealth safety outcome report includes a Winsorized result obtains using methods described below. Additional information on understanding discrepancies in PSI-90 and HAI report contents is provided below.

1) **Winsorization Methods.** Winsorization is the transformation of all eligible hospital measure data values to a standard z-score using the steps described below.

a) ***Winsorized Measure Result****:* is obtained by creating a continuous rank distribution of all eligible hospital raw measure values that are truncated at the 5th and 95th percentiles to determine the relative position of where each measures value falls in the distribution. Each hospital's Winsor measure result is determined as follows:

i. If falls between minimum and 5th percentile then it is equal to 5th percentile
ii. If falls between 95th percentile and maximum then it is equal to 95th percentile
iii. If falls between 5th and 95th percentile then it is equal to hospital's raw result.

b) ***Winsor Z-score (Z_i):*** is calculated for each safety outcome measure as the difference between the hospital's Winsorized measure result (X_i) and the mean of Winsor measure results across all eligible hospitals ($\overline{X}$) divided by the standard deviation of the Winsorized measure result from all eligible hospital's data using the following formula:

$$\textbf{Winsor } Z_i \textbf{ score} = (X_i) - (\overline{X}) / \text{SD}\,(x_i)$$

The Winsor z-score (for each safety outcome measure) reflects the distance between the hospitals measure result and the Mean measure result. The z-score also tells you how many standard deviations units a case is either above or below the Mean. The Winsorized z-score ranges from -3 to 3 standard deviations. For example:

- If the Z-score is 0, then the value for that case is equal to the Mean.
- If the Z-score is 3, then the value for that case is three SD above the Mean.
- If the Z-score is -3, then the value for that case is three SD below the Mean
- A negative Winsor z-score indicates the hospitals result was below the Mean (better).
- A positive Winsor z-score indicates the hospitals result was above the Mean (worse).

2) MassHealth PSI-90 Measure Report Discrepancy

The MassHealth PSI-90 measure reports are computed using a hospital stay file extracted from MMIS claims as described in Section 7 of RY21 EOHHS Technical Specifications Manual (14.0). Thus the cases identified in the PSI-90 report results may not match the hospitals internal records for following reasons:

a) The claim submitted by the hospitals billing department differs from the Medicaid hospital stay file records, as defined in Section 7.B of the EOHHS Manual.

b) Hospital measure results only reflect changes to final action paid MMIS and encounter claims data processed six months after the end of the discharges that apply to the measurement period.

c) The claim was amended and resubmitted by the hospital billing department *after* the final action claims run-out date, as defined in Section 7.B of the EOHHS Manual.

d) The hospital should verify their discharge level reports against claims submitted to MassHealth by the hospital billing department to confirm these claims were submitted prior to the run-out periods cited above.

e) EOHHS does not permit hospitals to submit corrections related to the underlying hospital claims used to calculate the PSI measure results. Hospitals cannot add or resubmit claims, or correct claims coding errors that apply to the measurement period reports.

3) MassHealth HAI Measure Report Discrepancy

The MassQEX results for each HAI measure is extracted from the MassHealth NHSN Group database as described in Section 7 of RY21 EOHHS Technical Specifications Manual (v14.0).

Thus the cases identified in the HAI report results may not match the hospitals CMS generated reports or NHSN reports for the following reasons:

a) The MassQEX report results were computed using different measurement data periods than the Hospitals CMS report or hospital internal reports extracted from NHSN surveillance system.

b) The CMS report data periods used to generate their HAI measure results may have used different criteria not available in the public domain for EOHHS vendor use (e.g.: CMS chart validation results, case minimum criteria, etc.).

c) The MassQEX report results were generated using different freeze dates than ones used in the hospitals CMS report or hospital generated results archived in the NHSN surveillance system.

d) The hospitals corrections or edits to the underlying NHSN submitted HAI data, for a given data reporting cycle, was calculated after the MassQEX vendor dataset extraction freeze date.

e) Hospitals may not request recalculation of original posted MassQEX reports based on hospital correction or edits to underlying NHSN database. EOHHS will not re-run HAI reports to factor in such corrections or edits to NHSN.

f) EOHHS recognizes that NHSN Analysis Tool software calculation errors may be identified and are beyond the MassQEX vendor control. EOHHS will notify CDC of such incidents and continue to monitor for any corrections notices posted in the public domain.

C. MassHealth Patient Experience Measure Report Discrepancy

The MassHealth HCAHPS measure reports are computed by the EOHHS contractor (Telligen) using the Hospital Compare archived data files as described in Section 9 of RY21 EOHHS Technical Specifications Manual (v14.0).

Thus MassQEX report results prepared by the EOHHS contractor for the HCAHPS measure may not match the information in other CMS or national summary reports for the following reasons:

1) The MassQEX report results were generated using different data periods or different archived data file versions than the Hospital results posted on Hospital Compare

2) The MassHealth measurement data periods used to generate Hospital Compare may have used different criteria not available in the public domain for MassQEX vendor use.

3) The hospitals corrections or edits to the underlying CMS submitted HCAHPS data, for a given quarter reporting cycle, were calculated after the MassQEX year-end report run date by the EOHHS contractor.

4) The hospital may not request recalculation of original MassQEX reports mailed based on hospital corrections or edits to national HCAHPS databases. The EOHHS contractor will not re-run reports to factor in such corrections.

5) EOHHS recognizes that HCAHPS calculation errors may be identified by CMS and are beyond the EOHHS control. The EOHHS contractor (Telligen) will continue to monitor the Hospital Compare website for any corrections notices related to HCAHPS data posted in the public domain.

Contact the Help Desk at massqexhelp@telligen.com for questions related to hospital measure report discrepancies.

Section 4: MassHealth Hospital Performance Score Report

The MassHealth Hospital Performance Score Report (HPSR) consolidates results into one document for all required quality measures listed under Section 1.A of this User Guide. The report displays results in three distinct tables by the type of performance assessment method applicable to each quality category per Section 7.4 of the Acute RFA. A description of how to interpret each table in your report follows.

A. **Individual Process and Patient Experience Quality Measure Category.** Table 1 displays column header labels associated with performance improvement methods and rows display results by each measure ID applicable to each individual process and patient experience measure category. A description of how to read the results follows.

Table 1: Individual Process and Patient Experience Performance Scores

Column Label	Description
[1.] Measure Results	a. **Previous Year:** Each individual process measure rate for CY2019 (01/1/2019–12/31/2019) reported data is rounded to nearest integer. The "NR" entry indicates no cases for the measure apply. The "INVALID" entry in indicates calculation is void due to failed validation status or data completeness requirement was not met. Each patient experience dimension measure rate for the CY2018 (1/1/2018–12/31/2018) data are rounded integers obtained from Hospital Compare website. The "NRC" entry indicates no data was available. b. **Comparison Year:** Each individual process measure rate for CY2020 (07/1/20–12/31/2020) reported data is rounded to nearest integer. The "NR" entry indicates no cases for the measure apply. The "INVALID" entry indicates calculation is void due to failed validation status or data completeness requirement was not met. Each patient experience dimension measure rate for CY2019 (1/1/2019 - 12/31/2019) data are integers obtained from Hospital Compare website. The "NRC" indicates no data was available.
[2.] Performance Thresholds	a. **Attainment**: Each individual process measures attainment is calculated as the median (50th percentile) performance of all hospitals from previous year data reported to MassQEX. Each patient experience HCAHPS dimension measure attainment is computed as the median (50th percentile) of all hospitals previous year data obtained from Hospital Compare. b. **Benchmark**: Each individual process measure benchmark is calculated as the mean of top decile (90th percentile) performance of all hospitals from the previous year data reported to MassQEX. The MAT-4 benchmark is the mean of the bottom decile (better performance). Each patient experience HCAHPS dimension measure benchmark is computed as the mean of top decile (90th percentile) using all hospitals previous year data from Hospital Compare.
[3.] Quality Points Earned	a. **Attainment Points**: The hospital received attainment points (from 0 to 10), on each individual process and patient experience HCAHPS dimension measure based on relative placement between the attainment and benchmark computed using the attainment points formula in attachment 1 of this guide. b. **Improvement Points**: The hospital received improvement points (from 0 to 9), on each individual process and patient experience HCAHPS dimension measure based on relative placement within the improvement range computed using the improvement points formula in attachment 1 of this guide. The "INVALID" entry indicates the calculation is void because no eligible data for the category apply.
[4.] Category Performance Score	a. **Total Awarded Points:** represent the higher of the attainment or improvement points earned on each measure. It is the sum of points awarded for the quality measure category. b. **Total Possible Points:** the maximum points that can be earned for the quality measure category. This column is adjusted when a new sub-measure is reported in the rate year it was required to begin. c. **Total Performance Score:** is the percent computed by dividing the 'Total Awarded Points' by the 'Total Possible Points' and multiplying by 100%. The "INVALID" entry in column 4 sub-headers indicates calculation is void due to failed validation or no eligible data for the measure category apply.

Please refer to the RY21 EOHHS Technical Specifications Manual (14.0) for more information on each individual process and patient experience HCAHPS dimension measure ID codes and names.

B. **Health Disparity Quality Measure Category.** Table 2 display five columns with header labels related to the decile rank performance assessment methods (e.g.: measure results, performance threshold, conversion factor, decile group rank, category performance score) for this quality category. The second row show results applicable to scoring method. A description on how to read your results follows.

Table 2: Interpreting Health Disparity Performance Scores

Column Label	Description
[1.] BGV Value	The between group variance (BGV) is computed using CY2020 (07/1/2020 - 12/31/2020). The 'INVALID' entry indicates calculation is void due to failed validation or hospital reported measures data did not contain more than one racial group to compute a BGV value.
[2.] Decile Group Rank	All hospital BGV values are ranked relative to other hospitals using the decile group system. Hospital BGV values are ranked from highest to lowest and rounded to six decimal places. Hospitals that did not meet data validation standards are excluded from ranking.
[3.] Target Attainment	Is defined as the boundary for a BGV value that falls above the second decile group which is the minimum level of performance that must be achieved to earn incentive payments.
[4.] Conversion Factor	The weight assigned to each decile group as noted in attachment 1 of this user guide.
[5.] Composite Performance Score	The composite score is the assigned decile group conversion factor multiplied by 100%. The "INVALID' entry indicates calculation is void due to failed validation status or no BGV was computed due to insufficient data.

C. **Safety Outcomes Quality Measure Category.** Table 3 display has been reformatted to reflect changes to the equal measure weight scoring methods. It displays results using header labels relevant to the quartile rank performance methods (e.g.: overall z-score, performance threshold, conversion factor, category performance score) applicable to this quality category. A description on how to read the report follows.

Table 3: Interpreting Safety Outcomes Category Performance Scores

Colum Label	Description
[1.] Measure Z-score	The hospitals PSI-90 and healthcare-associated infection measure z-scores (rows 1A to 1F) are computed using the Winsorization methods described in Section 3.B of this user guide. The "NRC" entry indicates no result is computed due to insufficient data.
[2.] Contribution to Overall Z-score	This value represents how much each measure z-score (rows 2A to 2F) contributes to the overall z-score. It is computed by multiplying the measure z-score by the equal weight for each measure to obtain each measures contribution to the overall z-score. Equal weights are assigned based on the total number of measures that had a z-score obtained by dividing 1.0 by the number of measures with a z-score in column 1a to 1f of your report. See attachment 1 of this guide for more detail on equal measure weights. The "NRC" entry indicates no result is computed due to insufficient data.
[3.] Overall Safety Z-score	The hospital's overall safety z-score is calculated as the sum of all equally weighted measure z-score contributions (PSI-90 z-score and each of the HAI z-scores). The overall z-score is rounded to six decimal places. The "NRC" entry indicates no result is computed due to insufficient data.
[4.] Performance Threshold	The performance threshold for the overall safety z-score is the minimum level of performance that must be attained to earn incentive payments rounded to six decimals. Refer to attachment 1 in this user guide for additional detail on the minimum performance level threshold.
[5.] Quartile Rank	All hospital overall safety z-scores are ranked, using the quartile group system, from lowest (top quartile) to highest (bottom quartile) and rounded to six decimal places. Hospitals that had no overall z-score are excluded from quartile ranking. The "INVALID" entry indicates the criteria for sufficient data was not met.
[6.] Conversion Factor	The conversion factor is the weight assigned to each quartile group as described in attachment 1 of this User Guide. The "INVALID" entry indicates the criteria for sufficient data was not met.
[7.] Category Performance Score	The performance score is the assigned conversion factor multiplied by 100% as described in attachment 2 of this guide. The "INVALID" entry indicates the criteria for sufficient data was not met.

Aggregate data to further assist in interpreting your hospitals safety outcome measure score follows.

1) **MassHealth Safety Outcome Aggregate Results**

The following table provides the aggregate MassHealth safety outcome measure results based on all hospital data collected for report measurement period.

Table 4: RY2021 MassHealth Winsorized Z-score Results

Measure ID	Mean	Standard Deviation	5th Percentile	95th Percentile
MassHealth PSI-90	0.967232	0.139524	0.789144	1.286603
HAI-1 (CLABSI)	0.760814	0.495164	0.054	1.947
HAI-2 (CAUTI)	0.990748	0.423890	0.295	1.888
HAI-3 (MRSA)	0.781604	0.394636	0.190	1.558
HAI-4 (CDI)	0.723830	0.255565	0.311	1.166
HAI-5 (SSI)	0.846454	0.436687	0.045	1.629

Table 4 displays data on mean and standard deviation based on all MassHealth hospital Winsorized z-scores. The data can be used to replicate your hospitals measure z-scores and overall z-score. Refer to attachment 2 of this user guide for an example of how to calculate a hospitals overall safety z-score result.

D. **Dissemination and Review Period**

a. **MassQEX Portal Dissemination:** The MassHealth HPSR is posted in the MassQEX secure portal 2 to 3 months after the year-end results are posted. Hospitals are expected to download their annual performance score report from the MassQEX portal. The HSPR will not be mailed.

b. **Target Audience:** The MassHealth HPSR is intended for the designated Acute RFA hospital key representatives (quality and finance executive) described in Section 1.B of this User Guide. All MassQEX hospital staff users are responsible for reviewing the MassHealth HPSR results with their hospital key representatives.

c. **Review and Correction Period:** Hospitals have twenty (20) calendar days, from the original notice of posting of report in the MassQEX portal, to request recalculation of HSPR quality category results prior to EOHHS computing final incentive payment calculations. Hospitals will not be able to request review or results once final hospital payment notice report is issued.

d. **Accessible Format:** The MassHealth HPSR is accessible in HTML format in the MassQEX secure portal. Please contact the MassQEX Help Desk at massqexhelp@telligen.com if you need assistance with accessing the HTML version.

Attachment 1 – Summary of MassHealth Performance Scoring Methods

Below is summary of methods referenced in the MassHealth HPSR described in previous Section 4 of this user guide. Refer to Section 7.4 of Acute RFA2021 for details on the MassHealth performance assessment methods.

1) Improvement Methods Quality Points System

a. **Award Attainment Points:** If measure rate is:
   i. Equal to or less than the attainment threshold, get zero (0) attainment points.
   ii. Within the attainment range (greater than attainment but less than benchmark), get from 1 to 9 points.
   iii. Equal to or greater than the benchmark, get 10 points for attainment.

b. **Award Improvement Points:** If measure rate is:
   i. Equal to or less than previous year, get zero (0) points for improvement.
   ii. Within the improvement range (greater than previous year but less than benchmark), get from 0 to 9 points for improvement.

c. **Quality Points Formula**
   - Attainment Points = Hospitals Measure Rate **–** Attainment ÷ Benchmark – Attainment× 9 + 0.5
   - Improvement Points = Current Measure Rate – Previous Year's Measure Rate ÷ Benchmark – Previous Year's Measure Rate × 10 - 0.5
   - All attainment and improvement points are rounded to the nearest integer (e.g.: 3.5 = 4.0).

2) Health Disparity Category Decile Rank

a. Conversion Factor: The weighted conversion factor for each decile group is provided in following table.

Figure A: Decile Rank Conversion Factor

Decile Group Threshold	Conversion Factor
10th decile (Top decile)	1.0
9th decile	.90
8th decile	.80
7th decile	.70
6th decile	.60
5th decile	.50
4th decile	.40
3rd decile (Target attainment threshold)	.30
2nd decile (Lower decile) 1st decile (Lower decile)	(zero)

b. Target Attainment Threshold - to meet this threshold, the hospitals BGV value must be above the 2nd decile group. BGV values that fall below the threshold get a conversion factor of zero.

3) Safety Outcome Category Quartile Rank

a. Equal Measure Weights: The assigned weight is based on number of measures with a z-score as shown in the table that follows.

Figure B: Safety Outcome Equal Measure Weights

Number of safety measures with a z-score	Weight assigned to each measure z-score	Decimal equivalent of Weight assigned to each z-score
6	16.7	0.166667
5	20.0	0.200000
4	25.0	0.250000
3	33.3	0.333333
2	50.0	0.500000
1	100.0	1.000000

As noted in Figure B, for the purposes of MassQEX year-end report displays, the equal measure weights noted as whole integers in Acute RFA21 (Section 7.4), were transformed to a six decimal point equivalent to align with interval variable format shown in the MassQEX safety outcome report results.

The equal measure weights method assigns the same weight to the PSI-90 and to each of the five HAI measures for which the Hospital has a z-score. Following are examples.

- If the Hospital has a z-score for PSI-90 and for only one HAI measure, then the weight of 50 would be assigned to each measure z-score.
- If the Hospital has a z-score for PSI-90 and for three HAI measures, then the weight of 25 would be assigned to each measure z-score.
- If a Hospital has no PSI-90 z-score and one or more HAI measure z-scores, then the weight of 100 is equally divided among the HAI measure z-scores.
- If the Hospital has only one PSI-90 z-score and no HAI measure z-score, then a weight of 100 is given to the PSI-90 measure z-score.
- If the Hospital has no z-scores for any of the safety outcome measures listed in Section 1 of this user guide then it will not receive a safety outcome measure overall z-score

b. Conversion Factor: The conversion factor for each quartile group is provided in following table.

Figure C: Quartile Group Conversion Factor

Quartile Group Threshold	Conversion Factor
4th Quartile (Lower z-scores)	1.0
3rd Quartile	.75
2nd Quartile (Minimum attainment threshold)	.50
1st Quartile (Higher z-scores)	.zero

c. Minimum Attainment Threshold - to meet this threshold the hospitals overall safety z-score must be above the 1st quartile. A lower overall safety z-score represents better performance and a higher z-score represents worse performance.

Attachment 2 – Safety Outcome Measure Score Calculation Example

An example of mock data and the steps to calculate the hospitals safety outcome measure overall z-score follows.

Figure 1 – Hospital A Safety Outcome Measure (Mock Results)

Measure ID	Raw Measure Result	5th Percentile	95th Percentile	Winsorized Measure Result	Winsorized Mean	Winsorized SD	Winsorized Z-score
PSI-90	0.848500	0.653700	1.297700	0.848500	0.888500	0.118100	-0.338696
CLABSI	0.922	0	1.375	0.922	1.048	0.164	-0.768293
CAUTI	0.112	0	1.808	0.112	0.998	0.481	-1.841996
MRSA	1.366	0	2.142	1.366	1.001	0.515	0.708738
CDI	0.919	0	1.639	0.919	0.979	0.348	-0.172414
SSI	***2.795***	0	2.353	***2.353***	0.965	0.714	1.943978

Step 1 → Compute Winsorized Z-scores using the two step process described under Section 3.B in this guide.

a. All hospital eligible raw measure results distribution is truncated at 5th and 95th percentile. Figure 1 shows the hospitals PSI-90, CLABSI, CAUTI, MRSA and CDI are between the 5th and 95th and therefore the Winsor measure result will be equal to the raw results. The SSI measure result of 2.795 is greater than 95th percentile and equals the value of 2.353 (shown in italic bold font).

b. Following example illustrates how each measure Winsorized z-score is computed using data in Figure 1.
   - PSI-90 = 0.848500 – 0.888500 ÷ 0.118100 = -0.338696
   - CLABSI = 0.922 – 1.048 ÷ 0.164 = -0.768293
   - CAUTI = 0.112 – 0.998 ÷ 0.481 = -1.841996
   - MRSA = 1.366 – 1.001÷ 0.515 = 0.708738
   - CDI = 0.919 – 0.979 ÷ 0.348 = -0.172414
   - SSI = 2.353 – 0.965 ÷ 0.714 = 1.943978

Step 2 → Compute Contribution to Overall Z-score

a. **Equal Measure Weight.** Hospital A had z-scores for all six measures (PSI-90 and five HAI's) so each measure is weighted 0.166667 as shown in attachment 1 (Figure B) of this user guide.

b. **Contribution to Overall Z-score.** Multiply the measure z-score by the weight to obtain each measure's contribution to the overall z-score. The following example uses Hospital A results displayed in Figure 2.

   Example: PSI-90 (0.166667 x -0.338696) = -0.056449; CLABSI (0.166667 x -0.768293) = -0.128049; CAUTI (0.166667 x -1.841996) = -0.306999; MRSA (0.166667 x 0.708738) = 0.118123; CDI (0.166667 x -0.172414) = -0.028736; and SSI (0.166667 x 1.943978) = 0.323996.

Step 3 → Compute Overall Safety Z-Score

a. Figure 2 displays the overall z-score calculated as the sum of each contribution of z-scores as (-0.056449) + (-0.128049) + (-0.306999) + (0.118123) + (-0.028736) + (0.323996) = -0.078114

Figure 2 –MassHealth HPSR Result (Mock Example)

Column Label	[a.] PSI-90	[b.] CLABSI	[c.] CAUTI	[d.] MRSA	[e.] CDI	[f.] SSI	[3.] Overall Safety Z-score	[4.] Minimum Threshold	[5.] Quartile Rank	[6.] Conversion Factor	[7.] Category Performance score
[1.] Measure Z-score	-0.338696	-0.768293	-1.841996	0.708738	-0.172414	1.943978					
[2.] Contribution to Overall z-score	-0.056449	-0.128049	-0.306999	0.118123	-0.028736	0.323996	-0.078114	0.321654	3rd	.75	75%

Step 4 → Interpreting Performance Threshold

a. If worst quartile was determined above 75th percentile (e.g.: 0.3450 falls above bottom first quartile).
b. An overall z-score of -0.213617 falls below (0.3450) and therefore not in the worst performing quartile.
c. Columns 4 and 5 in Figure 2 are determined using all eligible hospital overall z-scores. The conversion factor is assigned to obtain the category performance score for use in final payment calculation.